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	DB=PGPB,USPT; PLUR=YES; OP=OR		
<u>L16</u>	L15 and l13	9	<u>L16</u>
<u>L15</u>	L11 same ((data or card or chip or module) near4 (secur\$4 or protect\$4 or prevent\$4 or remov\$4 or eras\$4 or delet\$4))	4581	<u>L15</u>
<u>L14</u>	L13 and ((latch or flip-flop or register or nonvolatile or non-volatile) with ((data or card or chip or module) near4 (secur\$4 or protect\$4 or prevent\$4 or remov\$4 or eras\$4 or delet\$4)))	14	<u>L14</u>
<u>L13</u>	L12 and (((alternate or independent or separate) near6 (voltage or current or power or dc)) same battery)	94	<u>L13</u>
<u>L12</u>	L11 and l6	5853	<u>L12</u>
<u>L11</u>	((latch or flip-flop or register or nonvolatile or non-volatile) near4 (state or set\$3 or reset\$3 or initializ\$4 or high or low or "1" or "0"))	189470	<u>L11</u>
<u>L10</u>	L8 and (((alternate or independent or separate) near6 (voltage or current or power or dc)) same battery)	86	<u>L10</u>
<u>L9</u>	L8 and (((alternate or independent or separate) near6 (voltage or current or power)) same battery)	80	<u>L9</u>
<u>L8</u>	L7 and l6	4248	<u>L8</u>
<u>L7</u>	((latch or flip-flop or register or nonvolatile or non-volatile) near4 (state or set\$3 or reset\$3 or initializ\$4))	128453	<u>L7</u>
<u>L6</u>	(hardware or embedded or key) near4 (secur\$4 or protect\$4 or prevent\$4)	47569	<u>L6</u>
<u>L5</u>	(hardware or embedded) near4 (secur\$4 or protect\$4 or prevent\$4)	16487	<u>L5</u>

<u>L4</u>	l2 and l3	16	<u>L4</u>
<u>L3</u>	((latch or flip-flop or register or nonvolatile) near4 (set\$3 or reset\$3 or initializ\$4))	106522	<u>L3</u>
<u>L2</u>	l1 and ((battery and ((remov\$5 or detach\$5 or dismount\$4 or disconnect\$4) near4 (chip or card or planar or motherboard)))	67	<u>L2</u>
<u>L1</u>	(365/226-229.ccls.)	2824	<u>L1</u>

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L10 and L8	0

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<u>L11</u> L10 and l8		0	<u>L11</u>
<u>L10</u> L9 same (signal near4 (remov\$4 or interrupt\$3 or disconnect\$3 or detach\$3 or dismount\$3))		2111	<u>L10</u>
<u>L9</u> (latch or flip-flop or register or nonvolatile) near4 (set\$3 or reset\$3 or initializ\$4)		56333	<u>L9</u>
<u>L8</u> (battery near6 signal) with (system near4 (power or current or voltage))		302	<u>L8</u>
<i>DB=PGPB,USPT; PLUR=YES; OP=ADJ</i>			
<u>L7</u> L6 and l1		1	<u>L7</u>
<u>L6</u> L5 and l2		16	<u>L6</u>
<u>L5</u> L3 same (signal near4 (remov\$4 or interrupt\$3 or disconnect\$3 or detach\$3 or dismount\$3))		5337	<u>L5</u>
<u>L4</u> L3 same l2		7	<u>L4</u>
<u>L3</u> (latch or flip-flop or register or nonvolatile) near4 (set\$3 or reset\$3 or initializ\$4)		106522	<u>L3</u>
<u>L2</u> (battery near6 signal) with (system near4 (power or current or voltage))		931	<u>L2</u>
<u>L1</u> 365/226-229.ccls.		2824	<u>L1</u>

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Terms	Documents
((charg\$3 near3 pump) near8 (power or current or voltage or dc)) with ((remov\$4 or detach\$4 or dismount\$4) near8 (card or chip or board or medium))	0

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L4 ((charg\$3 near3 pump) near8 (power or current or voltage or dc)) with ((remov\$4 or detach\$4 or dismount\$4) near8 (card or chip or board or medium))	0	L4
<i>DB=PGPB,USPT; PLUR=YES; OP=ADJ</i>		
L3 ((charg\$3 near3 pump) near8 (power or current or voltage or dc)) with ((remov\$4 or detach\$4 or dismount\$4) near8 (card or chip or board or medium))	3	L3
L2 L1 with (power or current or voltage or dc)	1430	L2
L1 (charg\$3 near3 pump) with (card or chip or board or detach\$4 or remov\$4 or dismount\$4 or mount\$4)	2233	L1

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	side by side			result set
		DB=PGPB,USPT; PLUR=YES; OP=OR		
L4		I2 and I3	16	<u>L4</u>
L3		((latch or flip-flop or register or nonvolatile) near4 (set\$3 or reset\$3 or initializ\$4))	106522	<u>L3</u>
L2		I1 and (battery and ((remov\$5 or detach\$5 or dismount\$4 or disconnect\$4) near4 (chip or card or planar or motherboard)))	67	<u>L2</u>
L1		(365/226-229.ccls.)	2824	<u>L1</u>

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1 From Electron Mobility to Logical Structure: A View of Integrated Circuits

Wesley A. Clark

September 1980 **ACM Computing Surveys (CSUR)**, Volume 12 Issue 3

Full text available: pdf(3.29 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index](#)

2 Pen computing: a technology overview and a vision

André Meyer

July 1995 **ACM SIGCHI Bulletin**, Volume 27 Issue 3

Full text available: pdf(5.14 MB)

Additional Information: [full citation](#), [abstract](#), [citing](#)

This work gives an overview of a new technology that is attracting growing interest in public as well as in the scientific community. One of the main reasons for the interest in pen computing is in the use of a pen or pencil as the primary means of interaction between a user and a computer system. This metaphor is well known from the field of computer graphics, where it has been used to describe various input devices. From this follows a set of consequences that will be analyzed and put into context with other technologies such as speech recognition and handwriting recognition.

3 Design strategies for active power reduction: Energy recovery clocking scheme and flip-flops

Matthew Cooke, Hamid Mahmoodi-Meimand, Kaushik Roy

August 2003 **Proceedings of the 2003 international symposium on Low power electronics and design**

Full text available: pdf(452.24 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

A significant fraction of the total power in highly synchronous systems is dissipated over clock networks. This paper presents a new approach to power reduction in synchronous systems. We propose four novel energy recovery flip-flops that enable energy savings. The proposed flip-flops operate with a single-phase sinusoidal clock, which can be generated by a low-power CMOS oscillator. The proposed flip-flops have a low power consumption and a high performance. They can be used in various applications, such as mobile phones, portable devices, and consumer electronics.

Keywords: adiabatic, clock, clock tree, energy recovery, flip-flop

4 Razor: A Low-Power Pipeline Based on Circuit-Level Timing Speculation

Dan Ernst, Nam Sung Kim, Shidhartha Das, Sanjay Pant, Rajeev Rao, Toan Pham, Conrad Ziesler, David Patterson **Proceedings of the 36th Annual IEEE/ACM International Symposium on Microarchitecture**

Full text available: pdf(568.17 KB) Publisher Site

Additional Information: [full citation](#), [abstract](#), [index](#)

With increasing clock frequencies and silicon integration, power aware computing has become a critical issue. One of the more effective and widely used methods for power-aware computing is dynamic voltage scaling (DVS). DVS allows the supply voltage to be scaled down from its nominal value to reduce power consumption. However, DVS requires a large number of voltage levels, which increases the complexity and cost of the system. To overcome this problem, we propose a new approach called "Razor". Razor is a low-power pipeline based on circuit-level timing speculation. It uses a combination of speculative execution and dynamic voltage scaling to achieve high performance and low power consumption. The proposed approach is implemented in a 90nm CMOS process and shows a significant improvement in power efficiency compared to traditional DVS-based approaches.

5 Energy-aware design of embedded memories: A survey of technologies, architectures, and applications

Luca Benini, Alberto Macii, Massimo Poncino

February 2003 **ACM Transactions on Embedded Computing Systems (TECS)**, Volume 2 Issue 1

Full text available:  pdf(288.44 KB)

Additional Information: [full citation](#), [abstract](#), [refere](#)

Embedded systems are often designed under stringent energy consumption budgets, to limit heat significant amount of energy to store and to forward data, it is then imperative to balance power consumption and performance. Contemporary system design focuses on the trade-off between performance and energy consumption interconnections. Although memory design is as ...

Keywords: Embedded systems, embedded memories, integration, memories, nonvolatile, system

6 Testing: Low-power weighted pseudo-random BIST using special scan cells

Shalini Ghosh, Eric MacDonald, Sugato Basu, Nur A. Touba

April 2004 **Proceedings of the 14th ACM Great Lakes symposium on VLSI**

Full text available:  pdf(115.91 KB)

Additional Information: [full citation](#), [abstract](#), [refere](#)

In this paper, a technique for weighted pseudo-random built-in self-test (BIST) of VLSI circuits is presented. The proposed algorithm achieves low power dissipation. It is based on weighted pseudo-random scan testing in which the weight of each bit is a random value (0.5). A new weight selection algorithm is used to select a set of weights that achieve the minimum power dissipation ...

Keywords: built-in self-test, low power, weighted pseudo-random testing

7 Teaching digital logic design using a tape recorder simulator

R. P. Srivastava

February 1990 **Proceedings of the 1990 ACM SIGSMALL/PC symposium on Small systems**

Full text available:  pdf(658.62 KB)

Additional Information: [full citation](#), [abstract](#), [refere](#)

This paper describes two implementations of a tape recorder simulator. One is based on hard-wire approach. Both implementations are compared and evaluated for such points as flexibility, speed, ease of use and cost. The purpose is to introduce students of digital logic design to the problems of selecting a suitable implementation given certain constraints. This is ...

8 Very rapid prototyping of wearable computers: a case study of custom versus off-the-shelf designs

Asim Smailagic, Daniel P. Siewiorek, Richard Martin, John Stivoric

June 1997 **Proceedings of the 34th annual conference on Design automation**

Full text available:  pdf(121.36 KB)

Additional Information: [full citation](#), [references](#), [index terms](#)

9 Synthesis and simulation of digital systems containing interacting hardware and software components

R. K. Gupta, C. N. Coelho, G. De Micheli

July 1992 **Proceedings of the 29th ACM/IEEE conference on Design automation**

Full text available:  pdf(789.92 KB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

10 Compressionless routing: a framework for adaptive and fault-tolerant routing

J. H. Kim, Z. Liu, A. A. Chien

April 1994 **ACM SIGARCH Computer Architecture News , Proceedings of the 21ST annual international conference on Computer architecture**, Volume 22 Issue 2

Full text available:  pdf(1.17 MB)

Additional Information: [full citation](#), [abstract](#), [refere](#)

Compressionless Routing (GR) is a new adaptive routing framework which provides a unified framework for adaptive and fault-tolerant routing. CR exploits the tight-coupling between wormhole routers for flow control to detect potential problems. Compressionless Routing (FCR) extends Compressionless Routing to support end-to-end fault-tolerance and performance optimization ...

11 A Survey of Microcellular Research

Robert C. Minnick

April 1967

Journal of the ACM (JACM), Volume 14 Issue 2

Full text available:  pdf(3.57 MB)

Additional Information: [full citation](#), [abstract](#), [refere](#)

This paper is a survey of research on microcellular techniques. Of particular interest are those tec
fabrication processes, since the rapid emergence of reliable and economical batch-fabricated comp
field of digital circuits. First the manufacturing methods for batch-fabricated components are revie

12 Microprocessor applications in the nuclear industry

C. Dwayne Ethiridge

April 1980

ACM SIGCAS Computers and Society, Volume 10 Issue 3-4

Full text available:  pdf(986.50 KB)

Additional Information: [full citation](#), [abstract](#), [refere](#)

Microprocessors in the nuclear industry, particularly at the Los Alamos Scientific Laboratory, have
from data acquisition and control for basic physics research to monitoring special nuclear material
to support weapons diagnostics measurements during underground weapons testing at the Nevada
controlling ...

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